What is claimed is:

1. A tray for a vapor phase step in which a heat-resistant thermosetting resin is intimately bonded and impregnated to/into surfaces, including inner pore wall surfaces, of an inorganic continuously porous sintered body having a thickness of 0.5 to 10 mm and an open porosity of 5 to 50 % and a thin film of a super heat-resistant thermoplastic resin is formed thereon.

2. The tray according to claim 1,

wherein the inorganic continuously porous sintered body is selected from the group consisting of an aluminum nitride-boron nitride (AlN-h-BN) composite, an aluminum nitride-silicon carbide-boron nitride (AlN-SiC-h-BN) composite, a silicon nitride-boron nitride (Si_3N_4-h-BN) composite, an alumina-boron nitride (Al_2O_3-h-BN) composite, β-silicon carbide (β-SiC) and wollastonite.

3. The tray according to claim 1,

wherein the heat-resistant thermosetting resin is selected from resins whose cured products have a thermal decomposition starting temperature of at least 400 °C and the heat-resistant thermoplastic resin is selected from resins which have a thermal decomposition starting temperature of at least 500 °C.

4. A process for the production of a tray for a vapor phase step, comprising surface-treating an inorganic continuously porous sintered body having a thickness of 0.5 to 10 mm and an open porosity of 5 to 50 % for resin impregnation, impregnating the inorganic continuously porous sintered body

with a thermosetting resin to intimately bond the thermosetting resin to surfaces thereof including inner pore wall surfaces, machining the sintered body into a predetermined tray shape, impregnating the machined sintered body with a solution of a super heat-resistant thermoplastic resin as a final impregnation, and subjecting the sintered body to heating, drying and heat-treatment to form a thin super heat-resistant thermoplastic resin layer.

5. A process for the production of a tray for a vapor phase step, comprising impregnating an inorganic continuously porous sintered body having an open porosity of 5 to 50 % with a thermally decomposable resin, cutting the sintered body to a thickness of 0.5 to 10 mm, then machining the sintered body into a predetermined tray shape, decomposing and removing the thermally decomposable resin, cleaning the sintered body, surface-treating the sintered body for heat-resistant resin impregnation, impregnating the sintered body with a heat-resistant thermosetting resin to intimately bond the resin to surfaces thereof including inner pore wall surfaces, further impregnating the sintered body with a solution of a super heat-resistant thermoplastic resin, and subjecting the sintered body to heating, drying and heat-treatment to form a thin super heat-resistant thermoplastic resin layer.

6. The process according to claim 4 or 5, wherein the surface-treatment for heat-resistant resin impregnation is a surface-treatment including the inner pore wall surfaces in which an organic metal compound solution is impregnated, air-dried, dried, heated and thermally decomposed.